

REMARKS/ARGUMENTS

Claims 1-11 are currently pending. Claims 1-11 have been canceled and new claims 12 - 42 have been added. Support for the new claims 12 - 42 is found in the specification as originally filed. The specification has been revised to conform it to the preferred format for U.S. patent applications as required in the Office Action. Reconsideration is respectfully requested in light of the foregoing amendments and following remarks.

The Specification

The disclosure has been objected to because of certain informalities, and appropriate correction has been required. The specification has been revised to conform it to the preferred format for U.S. patent applications as required in the Office Action, and a Substitute Specification and Comparison Copy are submitted herewith.

Claims

The previously pending claims where "optional terminology" was used have been canceled. New claims 12-42 have been added. The newly added claims do not use optional terminology.

Claim Objections

Applicants respectfully submit that the objections to claims 7, 1 and 3 raised in the Office Action are now moot in view of their cancellation.

Claim Rejections - 35 USC § 112

Applicants respectfully submit that the rejection of claims 1-11 under 35 U.S.C. 112, second paragraph are now moot in view of their cancellation.

Double Patenting

Claims 1-11 were provisionally rejected on the grounds of nonstatutory obviousness type double patenting as allegedly being obvious over claims 1, 2, 4, 5, 9 and 12 of copending Application No. 10/835,358 in view of United States Patent No. 5,853,815 to Muehlberger. Applicants

respectfully submit that the above double patenting rejections are now moot in view of the cancellation of claims 1-11. Furthermore, Applicants acknowledge that a timely filed terminal disclaimer may be used to overcome the provisional rejection. Applicants are prepared to do so should the need arise when one or the other of the applications has allowed claims.

Claim Rejections - 35 USC § 103

Claims 1-11 were rejected under 35 U.S.C. 103(a) as allegedly being obvious over United States Patent Number 5,824,423 to Maxwell ("Maxwell") in view of Muehlberger and United States Patent Number 5,792,267 to Marszal et al. In order to further the prosecution of the presently pending claims Applicants have canceled claims 1-11 without acquiescence or prejudice and have added new claims 12-42. Applicants respectfully submit that the rejection of claims 1-11 under 35 U.S.C. 103(a) are now moot in view of their cancellation. Furthermore, Applicants respectfully submit that upon entry of the current amendment, the presently pending claims are patentable over the cited references for the reasons set forth below.

A novel and non-obvious aspect of the presently claimed invention is directed toward using a novel low pressure plasma spraying (LPPS) process to deposit both a so-called bond coat and also the so-called top coat to form a multi-part coating system on a substrate. As shown In Fig. 4 of the application as originally filed, the heat insulating coating system shown schematically in Fig. 4 is applied to a base body 3 by means of LPPS thin film processes. This coating system includes a barrier coating 3a, a hot gas corrosion protection coating 4, a heat insulating coating 1 on a ceramic base and applied in accordance with the embodiments of the present invention and a cover coating 5 which, as a smoothing coating, improves the erosion resistance. The base coating 3a, 4, the so-called bond coat, forms the underlying substrate of the heat insulating coating 4 (the so-called top coat) which is produced in accordance with the embodiments of the present invention and thus has a columnar micro-structure. The multi-part layers of the coating system are preferably all applied in a single work cycle without interruption by LPPS thin film processes.

The cited references do not disclose or suggest such a coating system or process. Maxwell is directed to the bond coat and not the ceramic or so-called top coat.

Maxwell discloses that the top coat is deposited by a conventional method. In particular, col. 8, lines 1-8 of Maxwell disclose that the ceramic top coat is deposited by a electron beam PVD process. Not only does Maxwell not disclose or suggest depositing the top-coat layer using the novel LPPS process of the current invention, in fact Maxwell teaches away from using LPPS to get columnar microstructures. For example as set forth in col. 9, lines 1-9, Maxwell discloses that non-columnar structures are formed by plasma spraying. Clearly Maxwell lacks any disclosure related to teaching the deposition of a ceramic top coat having columnar structures by a plasma spraying process.

Muehlberger does not disclose or suggest evaporating the coating material; instead it teaches away from evaporating the powder coating. (e.g., see col. 16, lines 5-8, and col. 1, lines 35-45). Furthermore, Muehlberger does not disclose the top coat being deposited with LPPS.

The Marszal reference is directed to a fixture apparatus; Marszal teaches that LPPS is used for depositing a base coat and not the base coat and the heat resistant coating as in the presently claimed invention. Marszal discloses that the base coating is used as a foundation for the subsequent application of the ceramic thermal barrier coating. Marszal lacks any disclosure related to teaching the deposition of a ceramic top coat having columnar structure by a plasma spraying process.

CONCLUSION

In view of the foregoing, Applicants submit that this application is in condition for allowance, and a formal notification to that effect at an early date is requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (415) 576-0200.

Respectfully submitted,



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